

## Unit 5 Plan

**Designed by: J. Moor, R. Rawhowser, A. Sanchez, M. Saucedo**  
**Grade: 9**  
**Subject: Algebra 1**

**Designed in School Year: 2010-2011**  
**Unit: Polynomials & Quadratic Functions**  
**Estimated Timeframe: 10 weeks**

Unit topic and subtopics	Essential Learning	Standards	Assessments	Strategies
Polynomials & Quadratic Functions	<b>Understandings (Students will understand that):</b> <ul style="list-style-type: none"> <li>Properties of exponents are required to manipulate polynomial expressions.</li> <li>The characteristics of polynomials and their representations are useful in solving real-world problems.</li> <li>Non-linear functions have non-constant rates of change.</li> </ul>	<b>Illinois State Standards:</b> 6.A.4 6.B.5 7.A.4b 8.B.4b 8.D.3c 8.D.4	<b>Anchor Performance Assessment:</b>  <b>Task Overview:</b> Exhibit mastery of skills presented in this unit by providing written solutions to a variety of algebraic problems.	Homework assignments, class discussion, small group activities  Tests and quizzes
Exponents	<b>Skills (Students will be able to):</b> <ul style="list-style-type: none"> <li>Use properties of exponents involving products and quotients</li> <li>apply product, power, and quotient properties</li> <li>use zero and negative exponents</li> <li>read, write, and compute with numbers in scientific notation</li> <li>graph and write rules for exponential functions</li> </ul>	<b>College Readiness Standards:</b> Expressions, Equations, & Inequalities (13-36)  Basic Operations & Applications (13-15)	<b>Products:</b> Comprehensive written exam assessing the skills practiced in this unit.	Oral participation: Students both ask and answer questions posed by the teacher and other students  Notebook entries which include the results of: <ul style="list-style-type: none"> <li>demonstrations: students working individually, in pairs, or in groups demonstrate ideas using manipulatives, graph paper, calculators, or whiteboard</li> </ul>
Polynomials and Factoring	<ul style="list-style-type: none"> <li>identify, classify, add, subtract, and multiply polynomials</li> <li>use the distributive property, tables of products, and patterns (including FOIL patterns, the sequence of a binomial pattern, and sum and difference patterns)</li> <li>factor a polynomial and use factoring to solve an equation</li> <li>write a polynomial to describe and solve real-world problems</li> </ul>	Numbers: Concepts & Properties (20-32)  Graphical Representations (33-36)	<b>Criteria:</b> An exam score below 69.5% is failing. An exam score of 69.6%–76.4% is below average, 76.5%–84.4% is average, 84.5%–92.4% is above average, and 92.5% or above is excellent.	<ul style="list-style-type: none"> <li>non-routine problems: the student restates the problem in his own words, explores the problem by drawing a picture or a chart, chooses a strategy such as guess and test, looks for a pattern, logical deduction, working backward, or exhaustive listing, and carries out the chosen strategy to solve the problem</li> </ul>
Quadratic Equations and Functions	<ul style="list-style-type: none"> <li>graph quadratic functions and compare them to the parent graph</li> <li>find the axis of symmetry, the vertex, and minimum and maximum values</li> <li>solve quadratic equations by factoring, graphing, using square roots, completing the square, and using the quadratic formula</li> </ul>	<b>Common Core Standards:</b> A-APR.1 A-APR.3 A-APR.4 A-APR.7 A-REI.4 F-IF.8 F-LE.3	<b>Other Key Assessments/Evidence:</b> Frequent quizzes assessing the skills practiced in this unit.	<ul style="list-style-type: none"> <li>error analysis and commentary, in which students keep a list of specific homework, tests, and quiz problems that resulted in errors; the format includes a statement of the problem as posed, a statement of the exact error made, and a correction and comment</li> </ul>

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